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## DR-LINK

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Request: I am looking for a system that is a computer based document management system. The system provides an efficient way to automatically import, index, categorize, store, search, retrieve, manipulate and archive electronic documents. The program is also capable of managing documents regardless of document type or document format. The system makes use of metadata or meta data or attribute data to create data structures.

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## Nippon Steel Launches Multi-Filing System

COMLINE - Telecommunications

05/21/96 2 pages (190 words)

Nippon Steel (5401) has launched NSXPRES 300X, a client/server multi filing system based on Windows NT and Windows 95, and NSInfoMaT, an all document search function filing system. NSXPRESS enables unified handling including search, preview and output on a PC basis of documents created through a variety of media including technical documents, photos and CAD diagrams, regardless of the difference in data format, and includes a visual search function. It also enables conversion of image data to CAD data, as do the other NSX Series products. InfoMaT is based on document recording functions of commercial software including Ichitaro and MS Word documents. NSXPRESS will start at 5.8 million yen for a stand alone version and 9.8 million for a client/server version, while InfoMaT starts at 2.5 million yen. The company hopes to sell 100 individual units and 30 packages in the first year. NXEPRES300X is the latest version of Nippon Steel's popular filing system which it has supplied to about 1400 companies since it first launched in 1987.

Additional Information:

Tokyo Stock Exchange Code: 5401

Original Sources: Nikkan Kogyo Shimbun, 05/16/96, p.8

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RAND Metadata Management System (RMMS). A Metadata Storage Facility to Support Data Interoperability, Reuse, and Sharing

By: S. Cammarata ; I. Kameny ; J. Lender ; C. Replogle

NTIS

01/01/95 2 pages (320 words)

The RAND Metadata Management System (RMMS) is a system that manages metadata. Metadata denotes definitional and descriptive information about databases, simulation models, and procedures. Databases, such as those maintained in the INGRES database management system (DBMS) by the Military Operations Simulation Facility (MOSF), are prevalent throughout RAND. Similarly, many prominent simulation models are exercised regularly in the MOSF and require input data extracted from INGRES databases. However, most of these databases have little documentation or other descriptive information to go along with them. The absence of such information leaves users at a loss for understanding the definitions, abbreviations, acronyms, and descriptions of the pieces of data stored and maintained in a DBMS. This report presents the design of the RMMS, a metadata management system for relational databases. Our goal was to produce a design document that could be used both by the users of MOSF relational databases (who may be future users of RMMS) and by users of other relational databases who would like to develop a similar RMMS metadata repository for their own set of databases. This work was motivated by the proliferation of databases stored and used in the MOSF and by a realization by the MOSF database management staff that such metadata is at least as important as, if not more important than, the actual data values. Although a management system typically includes facilities for user interaction and maintenance, in this document we focus primarily on the metadata storage structures within RMMS. Detailed discussion of user interface and maintenance designs is beyond the scope of this report.

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NAVY STANDS BY ITS LIBRARIANS. (NAVAL AIR WARFARE  
CENTER USES  
DOCUMENT MANAGEMENT TECHNOLOGY) (PRODUCT  
INFORMATION)

By: OLSEN, FLORENCE

Government Computer News

03/17/97 2 pages (190 words)

The Naval Air Warfare Center implements Universal Systems' (USI)  
Documetrix

document management system for aircraft test documents with the help of the  
librarians who used to manage the documents manually. Documetrix provides  
document management functionality to both client and server, and comes with  
a

client/server workflow builder. USI is about to integrate the Documetrix tools  
with its Staff Action correspondence management software, an  
application-specific

package that runs on top of Documetrix. Document management under  
Documetrix

involves both production and ad hoc workflow processes. It supports 68  
document

formats and allows users to create 'meta,' or index data, on their own for the  
various formats. Documetrix WorkManager, which costs \$46,797 for 20  
concurrent

users, can be bought as a standalone package or as part of USI's imaging and  
document management package. (author)

Additional Information:

## Additional Information:

Keywords: PRODUCT DESCRIPTION/SPECIFICATION; PRODUCT APPLICATION; DOCUMENT MANAGEMENT SOFTWARE; UNITED STATES. NAVAL AIR WARFARE CENTER

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And Now, Here Come The Players--Interested in document management for your enterprise? Well, check out our Buyers Guide

By: DAYNA DELMONICO AND OLIVER RIST

Communications Week

09/12/95 6 pages (1600 words)

Though fast on its way to becoming the next killer client/server application, document management is still a maturing technology.

As desktops gain more power and users become more sophisticated, the use of compound documents, embedded multimedia elements and other "smart" document technology will increase. Finding open, standardized ways to manage these resources is becoming the primary challenge of document management system vendors.

Our survey of 22 manufacturers with 31 products demonstrated that a successful document management implementation can cut a number of costs within the enterprise. For instance, expensive on-line storage (large hard disks) can be cut back, since most of these systems track documents off the server's overtaxed hard disks and onto higher-volume, slower-access media, such as optical disks, recordable CD-ROM or tape. Another important benefit would be a tangible reduction in environmental resources. Within these management environments, "electronic paper" is the main document medium with physical paper coming into the picture only at the very end, if at all.

When scanning our Buyers Guide charts, you'll notice a few ubiquitous features-functions no successful enterprise-wide document management system can do without. For example, advanced searching capability is obviously critical. Documents should be easily accessible both on the departmental LAN as well as on the WAN. These search functions should let you seek your documents based on specific or general keywords, logical operators, variable ranges and, of course, file names. Those management applications that cater to images as well as documents should have a thumbnail search capability also.

An advanced search criterion is called the content profile (or "tagging"); it lets users search for documents based upon their perceived relevance to search

users search for documents based upon their perceived relevance to search criteria entered by the user. This gets accomplished through bar codes or by searching for preselected portions of a document. Of course, that means your management system must have the capability to "tag" incoming documents with key pieces of information-origin (text input, scan, fax, etc.), type, distinguishing bits of content, its creator and intended recipient, even its time of creation or arrival. Once the system finds all germane examples of such documents, it can arrange those files in an order based upon their importance to the search criteria.

Archiving features also are a must. Document and image management solutions should integrate facilities that automate archiving and data storage. Don't confuse these with network backup, either; they're not the same thing. Rather, compare archiving features with Hierarchical Storage Management applications, which track documents based on creation date and the number of times a file was accessed. Files frequently accessed remain on the server's hard disk, those irregularly accessed get moved to "near-line" storage (magneto-optical, recordable CD-ROM, Bernoulli, etc.), while those that haven't been accessed much within a user-defined length of time are moved onto tape and then archived somewhere in the data warehouse.

Finally, remember that all this is still somewhat of an emerging technology. Any document management system you choose should be based upon an industry-recognized-and open-architecture. Use only an established database on the back end and make sure your documents are stored in a database format recognizable by multiple database front ends. Documents and images should be stored via an object-oriented or relational database management system with image files being saved in a graphics format recognizable not only by the database, but also by any intelligent document viewers you might be using (such as Novell Inc.'s Envoy or Adobe Systems Inc.'s Acrobat).

## Hot Features

Once you've covered all the must-have bases, examine your business. Establish exactly what it is your document management system will need to do, then see if any of these newly emerging features can help make you more competitive.

Some document managers use auditing which interprets documents literally to

Some document managers use auditing which interprets documents literally to be products. Examples of industries where this would be useful include publishing, legal and advertising. Auditing lets your administrators track documents and estimate the cost of access as well as who accessed the document, when and, sometimes, for what reason.

Annotating and linking are almost becoming ubiquitous features, as well. In environments where multiple pairs of eyes must peruse every document, it's necessary to have annotating features, so that multiple, modified copies of the document don't end up littering your LAN. Linking one document with another, highly relevant one also is a popular feature that lets users attach documents or images to one another. Annotations, as well, can be graphical or text-based in nature, with some systems letting you "paste" your annotations to a document on simulated electronic "sticky" pads. This may sound a little cutesy, but it can be useful in practice.

Versioning is another popular feature, many times dubbed "check-in/check-out." Documents subjected to frequent updates or edits lead difficult lives, and managers need some way to control access to them. Versioning tools logically link multiple versions of the same document together. If you've got multiple elements within one document, such as tables or graphics, some management systems even let you sub-version parts of the document to be updated separately and simultaneously. You should be able to display changes to documents separately from the original text (i.e., red lining) as well, while checking in and out provides a handy way for the administrator to track who accessed the document and when.

Another hot new feature becoming popular is the remote-document server. Allowing your remote users-telecommuters, traveling salespeople, remote offices, etc.-full document access can be critical to many businesses. This does not just mean thinking about bandwidth issues; a document management system should be prepared to accept access from outside the LAN or WAN, and it should also be able to customize access to these typically smaller-bandwidth links. Smaller menu and user interfaces, along with a means to preview, compress and even subdivide documents, are essential elements in this arena. Also, be aware, the entire area of remote access is in a state of extreme flux as new standards are born and die almost monthly. Make sure your document system supports industry-recognized remote standards, such as Novell's telephony services application programming interface for upcoming features such as telephone-implemented requests for network documents.

Along with remote access, you must consider security, especially since many documents contain sensitive corporate information. Security should include

documents contain sensitive corporate information. Security should include not just administrator-configurable controls, but also blocks that disallow access by other third-party applications-even some you may have installed on your LAN. Although you should be able to configure your document manager to be accessed by any application on your LAN, that connectivity shouldn't be ubiquitous-it should be entirely under the LAN administrator's control. Popular security measures can include passwords, versioning, encryption and even certain compression algorithms.

Lastly, if you're integrating a workflow system with a document manager, see if you can find a single system that incorporates both-or at least enough similar features to satisfy your business needs. Workflow capability would encompass determining the routes documents take through your enterprise as well as who can interact with them and when. Many vendors of both types of products are merging their functionality into one. A successful hybrid can save you time and money by cutting down on installation difficulties, staff training and document conversions.

## New Developments

Several of our vendors underwent features changes or additions shortly after our Buyers Guide went into production. Xyvision Inc.'s Parlance Document Manager 2.2 has a new "Portal" feature that lets users create background batch programs or write proprietary programs through an application programming interface.

Caere Corp.'s PageKeeper product has recently improved its intelligent text-retrieval functionality. Mostly, this capability describes the content profile feature described earlier.

Saros Corp. announced an upgrade to its Mezzanine document manager that aims it squarely at the enterprise user. You'll find bulk-add capability as well as dual-version connectivity, both of which will let an improved level of automation across large installations.

One product not featured in our chart was Bentley Systems Inc.'s TeamMate, a technical-document manager designed to aid the Atlanta-based company's MicroStation computer-aided design product family. TeamMate will automatically manage MicroStation files, while users will be able to access all document management functions from inside the MicroStation user environment.

Although this approach may seem too proprietary for most, the company claims TeamMate will be compatible with any ODBC-compliant back-end database, including SQL, Approach and Oracle Corp.'s Oracle.

Users of MicroStation version 5.0 and 5.5 and MicroStation PowerDraft can purchase TeamMate for \$475 per client.

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Additional Information:

Section: Interoperability

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FT 26 OCT 93 / Survey of Technology in the Office (13): A chance to reduce the paperwork / A look at ways to cut back on printed documentation and reduce costs in the electronic office by using new software packages

By: Robert Halliday

The Financial Times

10/26/93 5 pages (1200 words)

ONE of the biggest myths of the early years of the information technology revolution was that the use of computers would lead to the end of the use of paper for communications and the start of the 'paperless office.'

It is now clear that this paperless society is, at least so far, a myth. New technology has actually led to an explosion in the use of paper: the page design tools on personal computers allow anyone to create good looking documents, but the urge to get the design just right by tweaking tiny details mean that several draft copies may be printed where one typed memo would have sufficed.

Then, once finalised, the document may be faxed or posted to different sites, where it will be copied several more times for distribution and filing.

The disadvantages of this system are quite obvious: firstly, contrary to current ecologically-friendly trends, a large amount of paper is used.

Secondly, the costs of copying and transmitting the document can be huge and, despite the care taken with the design, the quality of the received



and, despite the care taken with the design, the quality of the received document (once it has been faxed, then photocopied, then comments added, then faxed back) can be unpredictable.

Thirdly, though by no means finally, if the recipient wants to take sections from a document to incorporate into another document, they cannot do so without re-entering the data into their computer.

Yet while distributing such documents as computer files, either down telephone lines or on disc, clearly solves many of these problems, this method has never become popular. This is mainly attributable to the difficulties caused by the different data formats which each computer and program uses.

Transferring plain text, the lowest common denominator of the different machines, has always been possible, but sending complex documents, containing text in different sizes and fonts placed around pictures is very difficult unless the sender and recipient have exactly the same software packages and fonts installed on their machines.

In some organisations this has led to packages being copied illegally just so that everyone could read electronically-distributed documents.

Two new software packages aim to solve this problem. Both 'Common Ground' from No Hands Software and 'Acrobat' from Adobe Systems claim to allow documents created with any application program, and incorporating any combination of fonts, graphics and colour, to be sent electronically to other users' computers and viewed on-screen.

The sender and recipients need not have the same applications or fonts installed, nor even be using the same type of computer - both products allow documents created on Apple Macintoshes to be viewed on personal computers

running Windows, and vice versa. Adobe is also working to bring users of DOS PCs and Unix machines into the Acrobat world.

Both systems appear to operate in the same way. Once installed, they add an option to the print command to output the document as a special format file, called 'digital paper' (dp) in Common Ground and 'portable document format' (pdf) in Acrobat.

The files, which preserve the look of the original document, can be distributed on disk or by modem, and be read on-screen using a viewer program - Common Ground even allows a mini-viewer to be included with a document, so that anyone can read it.

Once opened, the document can be searched for words or phrases, and sections of text can be copied to other documents.

Acrobat adds further facilities like 'sticky notes,' the electronic version or the familiar Post-It note, and hot links where selecting a phrase like 'see the attached graph' would take you directly to that graph, and will eventually support the standard SGML document structure system. If green-consciousness permits, both systems allow documents to be printed.

Beneath the surface, however, the two systems differ greatly, in ways which affect both the quality of the documents when printed and their file size.

Common Ground files contain a bitmap image of the document - a 'dot by dot' copy of the on-screen image.

When creating the digital paper file, the resolution can be selected to be 72 dots-per-inch (about the same resolution as appears on computer monitors) or 300 dots-per-inch (standard laser printer resolution).

The 72 dpi files are smaller, but appear ragged when printed or enlarged on screen; the larger 300 dpi files give much clearer results.

The technology behind Acrobat is much more complex. The portable document format is an extension of Adobe's established PostScript page description language most familiar from high-quality laser printers.

Rather than creating a bitmap copy of the document, Acrobat stores the 'metrics' of the fonts used.

Using the company's 'Multiple Masters' font format a system where one font can be stretched and distorted to give many variations of the design the receiving system. generates close copies of the original fonts.

Though it has problems with highly decorative typefaces, the advantage is that the resulting fonts are resolution independent if you print them on a high quality laser printer they will appear at the resolution of the printer, whereas those from Common Ground would be stuck at 300 dpi.

Acrobat also offers a number of compression systems to reduce the size of pdf documents, which is advantageous since it reduces both telephone transmission times and storage requirements; in some cases, 2Mb files can be reduced to around 100K.

However, documents cannot have a view included - to read a document you need an Acrobat Reader, and these are only currently available in minimum quantities of fifty, priced at Pounds 36 a copy.

'Exchange,' the program which creates pdf files, costs Pounds 140 per copy; and 'Distiller,' which takes existing PostScript files and turns them into pdf format, costs Pounds 500.

'Common Ground,' in contrast, costs just Pounds 149 for the Maker/Viewer.

The two system will however, find favour with different markets, Common Ground being ideal for distributing small-scale documents while Acrobat is more adept at large works containing extensive cross-referencing or full colour images.

Providing recipients avoid the urge to simply print-out documents, both systems will reduce costs and paper usage greatly. And while neither is yet perfect, both give the 'paperless office' concept a new chance.

Acrobat is from Adobe Systems, distributed by Principal Systems (0706.831.831); Common Ground is from No Hands Software, distributed by Gomark (071.731.7930).

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Best of Breed Document Management and Electronic Publishing Solution  
Debuts at Seybold San Francisco  
PRNewswire  
10/01/97 5 pages (1300 words)

HYNET Technologies Announces Digital Library System for  
Corporations and

## Corporations and

### Universities; Wins 'Hot Picks' Award at Seybold

SEYBOLD CONFERENCE, SAN FRANCISCO, Oct. 1 /PRNewswire/ --  
HYNET

Technologies, a Belmont, Calif.-based developer of document management solutions for corporations and universities, today announced the company's debut with the Digital Library System (DLS). HYNET Technologies' DLS incorporates the best elements of document management and electronic publishing to create a single, cost-effective solution for the Internet, intranet, and CD-ROM.

This solution offers security, full-text search of content and user annotations and the ability to "shuffle" content to meet user needs, while supporting open standards such as SQL, SGML and XML. HYNET is the first to offer support for four Asian languages and a unique pricing option which allows unlimited titles, web access, and CD-ROM distribution. At Seybold San Francisco 1997, DLS was deemed one of the show's "Hot Picks" and featured both in the show preview and on the Website.

"HYNET's Digital Library System combines the features of both document management and electronic publishing systems into a single powerful solution for information management," said Nathaniel Palmer of The Delphi Group. "We will watch with interest to see how the marketplace responds to this offering."

HYNET's DLS consists of patented technology and has been adopted by major organizations such as Novellus Systems and University of Southern California. HYNET is a privately funded company with investments from corporations such as Acer, Inc., a leading manufacturer of personal computers, and Commonwealth Publishing, publishers of Taiwan's largest economic monthly magazine. The HYNET executive team is led by Daniel Chang, a visionary in the field of hypertext, and student of Dr. Andries van Dam, a recognized industry expert in computer graphics and hypertext/hypermedia.

"HYNET Technologies has been very methodical in the creation of its company and products," said Daniel Chang, president and founder. "Over the last two years, we have been creating a product, HYNET's DLS, which captures the original vision of

product, HYPNET's DLS, which captures the original vision of document management prophesied over two decades ago. We are also pleased to have garnered financing from industry leaders who recognize the importance of easy and intuitive electronic information distribution, query and storage. The customers of the HYPNET DLS have experienced cost savings, reduction of redundancy and the expedition of publishing and editing of electronic documents."

## HYPNET Digital Library System

HYPNET Technologies' Digital Library System fuses the best capabilities of both document management and electronic publishing systems into a single cost-effective system. The system is comprised of individual software components, allowing users to configure a system to exactly meet their needs. DLS is an open solution, which uses industry-standard viewers such as Netscape Navigator and Microsoft Internet Explorer. The system allows easy importing of existing documents, which can then be configured for style and structure. It also manages document check-in, check-out and version controlling. Once in the system, documents are managed as objects in any ODBC/SQL-compliant database. HYPNET also provides full-text search across both the document content and annotations in any language. To ensure that information remains fluid yet secure, HYPNET DLS supports virtual document assembly, access control and personalized views of documents. DLS will even intelligently select and connect information tailored to users' interests.

"We expect HYPNET's technology will allow us to produce online publications specifically designed to take advantage of the latest Web technology... we hope that it positions us for the future, and keeps us on the cutting edge, which is where our company wants to be," said Alice Heidinger, director of technical publications at Novellus Systems.

"Using HYPNET, we estimate we will save \$50,000 a year just on royalty fees," Heidinger added. In all, the company estimates it will save a total of up to \$1 million a year counting savings on

will save a total of up to \$1 million a year counting savings on paper manual production and royalty fees combined.

HYNET is the first to offer the revolutionary Binder architecture, which allows users to "shuffle" document content and structure after the document has been published. Users can also create their own personalized Bookshelf -- a user's unique collection of documents -- in the Digital Library System (DLS), allowing them to organize and use information to suit their needs.

HYNET's solution allows for the creation of views and editions of documents without re-indexing or duplicating document information. And, among other unique technologies, HYNET offers a digital librarian that intelligently selects information and delivers it to users based on their interests or specific tasks at hand. These breakthrough technologies allow universities, publishers and business users to create customized "electronic books" easily, and to extend the usefulness of electronic information in ways never before possible.

HYNET's Digital Library System is made up of a suite of core components. The capabilities of the HYNET components support the electronic document management process from beginning to end, including providing powerful tools for converting and importing documents to managing user access and control and searching documents.

The following components work together in the HYNET DLS: HyConvert(TM) imports FrameMaker and Microsoft Word documents to HYNET's DLS; HyBrowser(TM) provides dynamic hierarchical view of documents, user-definable table of contents, and annotations; HyServer(TM) manages access control and user authentication; HyBase(TM) acts as an object repository; HyLink(TM) empowers users to assemble documents dynamically via "drag and drop" to create a personalized bookshelf or binder; HySearch(TM) performs attribute and full-text searching on content, user annotations and user-defined attributes; and HyAgent(TM) acts as an intelligent digital librarian and detector, which automatically selects and connects information according to user interests or tasks at hand.

## Pricing and Availability

Due to HYNET Technologies' understanding of the Internet, the company is the first to offer a unique pricing option for the HYNET DLS that allows unlimited titles, web access and CD-ROM distribution. HYNET DLS is available immediately and prices start at \$50,000 (US). Customers receive one HYNET DLS server and gateway to SQL database; 10-day training and support and unlimited titles, web access and CD-ROM distribution. Other options include additional gateways to SQL databases, support for English and four Asian languages -- Traditional Chinese, Simplified Chinese, Korean and Japanese -- and additional training, services and support. HYNET uses a direct sales force to target, cultivate and satisfy new users.

Founded in 1995 and headquartered in Belmont, CA, HYNET's mission is to be a leading provider of full-featured solutions which incorporate the best elements of document management and electronic publishing thus enabling customers to distribute mission critical information on a global scale. The award-winning HYNET Digital Library System helps its customers -- including higher education, high-tech manufacturing, publishing and airlines -- to deliver this information rapidly, economically and dynamically via Internet, intranet and CD-ROM. For more information about HYNET and its product, visit the company's Website at <http://www.hynet.com>.

NOTE: HYNET is a registered trademark of HYNET Technologies. HyConvert, HyBrowser, HyServer, HyBase, HyLink, HySearch and HyAgent are trademarks of HYNET Technologies. All other trademarks are owned by their holders and respectively acknowledged.

SOURCE  
HYNET Technologies

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AIIM Task Force Unanimously Approves ODMA 2.0 Document Management

Standard  
By: Business Editors and Computer Writers  
BUSINESS WIRE  
10/02/97 3 pages (630 words)

SILVER SPRING, Md.--(BUSINESS WIRE)--Oct. 2, 1997--The Association for Information and Image Management International (AIIM) today announced that its Open Document Management API (ODMA) Task Force, an industry coalition focused on document management standards, has unanimously approved a new set of technical specifications for ODMA.

The enhancements to ODMA, which standardizes the way desktop applications integrate with document management systems, demonstrates continuing commitment to standardization from virtually every major software supplier. ODMA has been broadly embraced by document management systems vendors, software application suppliers and the corporate information management community.

The standard allows desktop applications such as word processors, spreadsheets and other programs to seamlessly integrate with document management systems, which provide search and retrieval functions and other document control capabilities. By standardizing access to documents stored in document management systems, ODMA makes it easier for users to interact with documents, without regard for file format or location.

Current ODMA sponsors include Documentum, Digital Equipment, Eastman Software, FileNet, NaperSoft, NovaSoft, Novell, Oracle, PC Docs and Visio Corporation. Over 100 ODMA-compliant applications are now shipping from these and other top industry suppliers, including Microsoft, Corel and IBM/Lotus. ODMA 2.0 Highlights

ODMA 2.0 provides improved support for popular document management features including access to alternate file formats. This enables users to choose between formats, such as Word, HTML or PDF, when they request a document from a document management system. The new ODMA specification also provides support for compound documents, such as a word processing file with a link to a presentation slide or spreadsheet.

In addition, ODMA 2.0 offers additional ways for document management systems to reference documents. Document management systems may now specify a document's format using MIME type, file



systems may now specify a document's format using MIME type, file extension, or other uniquely identifying information. Key attribute information, including author, owner, version information, check in and check out information, keywords, subject, and URL links, has also been added to the specification. This will allow for added uniqueness in document identity and enhanced precision in document search and retrieval activities.

"The ODMA task force continues to drive meaningful additions to the standard in a very proactive and cooperative manner," said Kimberly M. Woodward, product marketing manager for Documentum and chair of the ODMA Task Force. "With the unanimous approval of the 2.0 specification, we will now focus our efforts on driving even broader implementation, acceptance and demand for compliant applications."

"ODMA continues to win broad industry support primarily by addressing the needs of the corporate IS community without sacrificing individual vendor strengths," said Marilyn Wright, vice president of standards and technical services for AIIM International. "The consensus reached on ODMA 2.0 reflects the market demand for compliance with industry standards, which will continue to play a key role in the corporate decision-making process for new document management solutions."

The ODMA 2.0 specification is published on the AIIM Web site at <http://www.aiim.org/odma/odma20.htm> . For additional information about ODMA, including a copy of the specification, product registration and membership information, contact Marilyn Wright at 301-587-8202, ext. 662 ([MWRIGHT@aiim.org](mailto:MWRIGHT@aiim.org)) or Kim Woodward at 510-463-6800 ([kim.woodward@documentum.com](mailto:kim.woodward@documentum.com)).

AIIM International is the leading global association bringing together information management professionals and providers of digital document technologies. Additional information on AIIM International is available on the Web at <http://www.aiim.org> .

(Copyright 1997)

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Witco's technical information system

## Witco's technical information system

By: Eckard, A. ; Costello, M.T. ; Thalman, W.J. ; Weaver, J.A.

Inform

09/01/96 2 pages (290 words)

The conversion of disorganized paper documents into a highly structured, easily searchable electronic database not only fosters easy access of information through the use of document management software, but also archives the documents into a compact, easily protected format. Using the suite of ZyImage software applications, and a minimum of personnel resources, we were able to build an R&D database by converting the paper files into an electronic format and saving the documents to appropriate LAN media and locations. By incorporating the newer electronic files into the database, we can immediately have access to all current R&D activities and information. ZyBuild (the indexing software) automatically builds or updates the index to include every word it finds in the document it is indexing. This process saves many man-hours that would otherwise be necessary to manually key-word each document. This also allows a full-text search to be performed. ZyFindi (the search software) has many search operators that can be utilized for finding information. We can search on a word or phrase, use Boolean operators, proximity, quorum, numeric or date range or key fields. We can also perform searches with the fuzzy search option; this allows a level of ambiguity to compensate for variations in spelling or OCR errors. When paper documents are converted into an electronic format suitable for searching, the conversion isn't completely accurate; this is not acceptable for experimental data. The ability to link the original scanned image to the searchable intelligent document assures complete retention of the original data.

### Additional Information:

Descriptors: data conversion ; document image processing ; full-text databases ; indexing ; petroleum industry ; visual databases

Identifiers: Witco ; technical information system ; paper documents ; searchable electronic database ; document management software ; document archiving ; easily protected format ; ZyImage software applications ; personnel resources ; R&D database ; file conversion ; document saving ; LAN media ; ZyBuild indexing software ; full-text search ; ZyFindi search software ; search operators ; fuzzy search option ; conversion accuracy ; scanned image ; searchable intelligent document ; data retention

scanned image ; searchable intelligent document ; data retention  
Document Type: Journal Paper  
Country of Publication: USA  
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International Standard Serial Number: 0892-3876  
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Records management for electronic documents.

By: Gable, Julie

Records Management Quarterly

10/01/97 13 pages (3500 words)

Discusses software for applying records management principles to electronic records. Document management; Features of records management; How the system works; Requirements for record management; Pricing strategies for electronic records management.

Magazine: RECORDS MANAGEMENT QUARTERLY, OCTOBER 1997  
Section: ELECTRONIC RECORDS MANAGEMENT

## RECORDS MANAGEMENT FOR ELECTRONIC DOCUMENTS

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This article discusses software for applying records management principles to electronic records. The point is not to sell software, but to make records managers aware of how these new tools work, the possibilities they offer and the issues they raise. Three products are used as examples: PSS Software's RIMS, Tower Software's TRIM, and Provenance's ForeMost. Their mention should not be construed as an endorsement or promotion of any kind. The object is to understand key differences among product approaches so that records managers may have a better context in which to evaluate product offerings.

Sound records management calls for managing a record from its creation through its final disposition. Retention schedules, for example, commonly tell how long a record series is kept and where it is kept, correlating accessibility with the record's active and inactive periods. On a retention schedule,

with the record's active and inactive periods. On a retention schedule, electronic records receive a retention period based on their classification, no different from their paper counterparts.

The challenge of electronic records, however, has several parts. Unless they are printed, electronic records remain intangible. They are physically stored on a personal computer hard drive or a shared network drive where they remain accessible. In information systems parlance, "inactive" electronic records are those that have not been opened or edited for a particular time period--typically six months. To make room on the network drive, the "inactive" electronic records are archived, which means that they are transferred to magnetic tape and stored off-line --perhaps in perpetuity. The problem is that the physical locations of electronic records are not managed by records managers but by information systems departments. So the first challenge of electronic records management lies not in applying a retention period, but in making it stick, i.e., assuring that an electronic record follows the same pre-determined path as its paper brethren and is ultimately destroyed or preserved as prescribed by the records program.

The second challenge is more complex: electronic records are not named in any consistent way and follow no consistent filing structure. Electronic records are created in decentralized environments, given names that appeal to their creators and are placed in electronic file folders or directories that have been set up according to their creators' sense of order. Until recently, names for electronic documents were limited to eight characters, a dot, and three characters, known as 8.3 file names. Depending on how clever the creators were about making directories and sub-directories for their work, the electronic documents could literally be anywhere.

In electronic environments, only a record's creator knows: (1) What the record's content is; (2) What the record is called, and (3) In which electronic directory it has been placed. Without consistent structure, classification or indexing, finding an electronic record takes on the feel of rummaging in an electronic basement. Bad as this situation is, it is expected to worsen. According to Dr. Keith T. Davidson, executive director of Xplor International, "By 2004, the pile of information on your desk will be 30% paper and 70% electronic, compared to 90% paper today."(n1)

The inability to locate critical electronic documents represents huge problems for environments where teams of people work on a common project, e.g., law firms, research groups, construction projects, etc. In the late '80s middleware software products(n2) emerged to deal with this problem. Products such as PC DOCs and Saros Mezzanine were originally designed to overcome the limits of 8.3 naming and provide a structure for filing the document as soon as it was

of 8.3 naming and provide a structure for filing the document as soon as it was saved. This was accomplished by providing an information capture screen and an underlying database in the middleware product. For example, after creating a document using Word for Windows, the author selects Save from the File menu. Instead of the regular Save window, PC DOCs opens a Profile window which permits the author to name the document fully, record key words associated with the document, enter a lengthy description of document content and place the new document into an electronic folder selected from a limited list of possible electronic folders. The document now has a name that makes sense, can only be in a limited number of folders (as opposed to anywhere) and can be found by conducting a search based on document description or key words.

With the ability to locate documents, middleware software products went on to include a field for document type, a rudimentary form of classification. Now when saving the electronic document, a creator could select from a limited list of document types, e.g., deposition, correspondence, closing argument, etc. The document type, in turn, is linked to a database table which supplies a predetermined retention period for the document type chosen. An important distinction is that "retention" on the profile screen actually refers to the number of days the document is to reside on-line before being transferred to magnetic tape.

Many middleware products evolved into document managers, providing a database to store the profile information and specialized repositories for storing the electronic documents themselves. Many document manager products now include publishing capabilities such as tracking all versions of documents maintaining an audit trail of all actions to documents, workflow routing for review of documents and electronic signature capability for approving documents. Document management software also includes facilities for managing images, assembling lengthy, complex documents and publishing to internal information repositories via an intranet or to mass access vehicles like the World Wide Web. In a world where the Internet has made everyone a publisher, it is easy to see why document manager products are so popular. But what about records management for the electronic document?

Traditional records management software packages are less than optimal for managing electronic documents. Most of them evolved from the need to manage containers filled with tangible items, for example, boxes and file folders. Paper records lend themselves to a structured approach because it is easier to use, distribute and store related papers grouped in file folders. Traditional records management software is designed to manage records in groups or series.

groups or series.

But, as we have seen, electronic records are generally not structured, nor do they need to be to enable their use, transport or storage. Electronic records require management at the individual document level. Up to now, using traditional records management software for individual electronic documents has been cumbersome because there is no link between the application software used to create the electronic document, e.g., WordPerfect, Lotus 1-2-3, etc., and the records management software package. They are two separate entities, with no way to import information about the electronic document, e.g., its title, author, creation date, etc., from the electronic application into the records management software product's database. Two separate entities mean that the records manager has to (1) Somehow know that an electronic record has been created (virtually impossible in decentralized environments without some kind of alerting mechanism) and (2) Enter information about each electronic document into the records management software package, usually by rekeying meta data, a significant addition to workload with opportunities for error. It is no wonder that many environments print electronic documents to paper, then simply manage the paper records by the usual methods. The electronic records, however, may still exist.

## EMERGING ALTERNATIVES

Newer records management software packages such as ForeMost from Provenance, RIMS from PSSoftware and TRIM from Tower Software are capable of managing electronic records at the individual document level. These products, and others like them, link directly to application software packages or to the profile screens of document management products to capture pertinent meta data automatically for use in the records management software package, and impose records management control on the electronic record and its physical location.

## HOW IT WORKS

One popular approach in products like ForeMost, RIMS and TRIM is to link to the middleware (or document management) product, adding a dialog box, button or check box in that product's profile screen. When the creator saves a document, the profile screen appears. The creator enters the document name,

document, the profile screen appears. The creator enters the document name, key words and other information into the profile screen. The middleware automatically captures the author's name (based on his or her sign on), the application software and version used to create the document, the creation date, and other information. The user clicks the button or check box, signifying that the document is an electronic record. At this point, the records management product may present the user with a limited list of document classifications from which to choose, and the user classifies the document. The classification chosen matches a database table in the records management software, thereby assigning a true retention period in accordance with the records program. A variation on this procedure lets the user click a button on the profile screen to flag the electronic document, but not classify it. Instead, the electronic document enters a queue for full classification and retention to be done by the records manager.

Through the link with the middleware document manager product, the records management software extracts document name, author, date created, etc. automatically from the profile screen, placing it into the records management database. The automatic capture obviates the need for rekeying. Using the records management software, the records manager can view the data captured from the profile screen when the user saved the document. Depending on the product used, the records manager may verify the document classification chosen by the user, or the records manager may open the work queue, assign document classification from the drop down list and watch as retention is automatically assigned based on the software's stored retention table.

Another approach, used in ForeMost, is to link directly to the creation application. ForeMost, designed from the ground up as an electronic document management tool, can capture date, author, document name, etc. from the native application and pass it to the ForeMost database without the need for a middleware document management intermediary. In addition, ForeMost has macros that can be set to sweep through a document looking for user placed bookmarks. Information between bookmarks can be automatically transferred into the ForeMost database fields.

It is worth noting that records management for electronic documents will work with word processing, spreadsheets, graphics, CAD drawings and e-mail. Notice too, that use of records management software implies the existence of a records classification scheme and retention schedules. Both require careful development because database retention tables are based on them.

## MANAGING THE DOCUMENTS

Now that structure has been applied to the electronic document via classification, what about its effective management as a record for the rest of its life cycle? One question is where does the electronic record physically reside? As we have seen earlier, electronic records on network drives are managed by network rules that are governed by access not legal retention.

Again, approaches vary. Most commonly, the actual electronic document is copied from the storage location designated by Saros or DOCs Open and the copy is placed into the storage location-designated by the records management software, to be controlled by the records manager. Note, however, there are now two copies of the electronic record being stored: one on the DOCs Open or Saros server and one on the records management server. Two storage locations undermine the ability to delete a document at full retention. This is an acknowledged problem. Records management software developers are working on a way to move the electronic document out of DOCs Open or Saros server control and onto the records management product's server only. Moving the electronic document raises the issue of how end user/creators will be able to search for it: Will they use the document manager product or the records management software. Other approaches to physical storage location include keeping the electronic record in the document manager product's server only, or storing the electronic record itself as a binary large object (BLOB) within a database field in the records management software.

This brings us to delete vs. destroy. Deleting an electronic document does not destroy it. Delete simply removes the pointer to the document's location on the hard drive. Using special tools, a "deleted" electronic document can be recovered. Several firms now provide such services on a fee basis in support of legal discovery processes. On this point, electronic records management software packages vary. One allows deletion of the profile information and the document, another retains the meta data, destruction date and destruction authorization but deletes the electronic record itself. None have facilities, as yet, to overwrite the sector of the hard drive where the electronic document was stored, so the electronic document is deleted but not destroyed.

## OTHER FEATURES

The records management software packages mentioned can do searches and view lists of search results. But unlike packages geared for paper records, the newer software products allow viewing the electronic document directly. The new products are also moving toward providing full text search capabilities



new products are also moving toward providing full text search capabilities for the electronic documents that they store. Using products like Fulcrum integrated with the records management package, the record manager can search for specific documents based on text strings, Boolean operators and other search methods. Once found, the electronic document can be presented in view only mode, or the native application (the one used to create the document) can be launched automatically. Tower's TRIM offers document management capabilities such as version control in addition to records management features.

It is worth noting that Tower's TRIM and PSSoftware's RIMS are products that have evolved from experience with managing paper records. Both products are rich in functionality for paper as well as electronic records management. Provenance's ForeMost is designed specifically for electronic records management, and the company is currently working on adding features for managing paper records.

The difference in origins is evident in examining the degree of customization. All three products permit minor customization (e.g., changing field names, defining views, configuring the toolbar) without the need for programmer intervention. ForeMost, however, actually consists of Application Program Interfaces(n3) (APIs) that allow it to interface with products such as Microsoft Mail, Delrina FormFlow, Watermark Imaging and others. APIs are best used in the hands of experienced programmers.

## REQUIREMENTS

While older records management products come with a specific (and possibly proprietary) database, products mentioned in this article give users a broad choice of well-known database tools such as MS SQL server, SYBASE, Oracle, Gupta SQL base (now called Centura), Informix and DB2. Having a choice of database is appealing in environments where an information systems department has set database standards for the entire organization, or in situations where a document manager product is already installed and operating with a specific database.

Most records management software products with electronic records capabilities (RM-E) are designed for client-server architecture. The server contains the database and the electronic document store. Clients are user PCs that have the appropriate RM-E software installed. Recommended server hardware is, at minimum, 486 or Pentium processors, and eight to 16 MB of

RAM, depending on the product chosen and the database tool desired. Server operating systems may be Windows NT, UNIX or Novell. Client operating systems must be Windows 3.1, Windows 95 or Windows NT. The RM-E software packages generally run as 16 bit applications although 32 bit versions are emerging.

## PRICING

Pricing strategies for electronic records management software vary. Pricing may be set by the number of clients (users), moving upward in increments for every five or 10 additional clients. In concurrent licensing, one price allows a set number of users to be on the system at any given time. In contrast, named users means that a fee must be paid for each user's software use and only those identified in the contract can use the software. Software may also be segmented according to the level of functionality required, for example, inquiry only capabilities vs. ability to perform full updates, i.e., add, edit and delete database items and electronic records. Pricing shown below assumes that the buyer already has a database compatible with the choices that the RM-E software product offers.

ForeMost from Provenance prices according to the number of software modules

purchased and estimates that pricing averages \$150 to \$400 per seat, PSSoftware's RIMS costs \$1,995 for server software, plus \$245 per seat for client software purchased in quantities of 1 to 50 seats. For purchases greater than 50 seats, the price per seat drops to \$49. Tower Software's TRIM product prices according to the desired degree of functionality desired for each user and by the number of seats. Typical cost for four full update licenses, two limited update licenses and two inquiry only licenses is about \$7,000 to \$8,000

Depending on the RM-E software product chosen, prospective purchasers should be aware of the need for PC DOCs Open or Saros software as well. DOCs Open 3.5 pricing is \$349 per client and \$1,295 per server. Pricing for Saros Document Manager 4.0 is \$495 per workstation.

## A TWO-EDGED SWORD

Software capable of managing electronic records, while not perfect, is an improvement over current methods. Its effective use requires a solid records management program, implementation planning, user education and policies designed to deal with the issues that electronic technology raises. For example, is every version of an electronic document considered a record? If not, which version should be designated for retention, and what happens to earlier versions? Unlike their more traditional counterparts which were mostly used by the records management department, the RM-E software packages are meant to be deployed throughout an organization. Properly implemented, they have the potential to make end users more conscious of records management practices and bring value to the organizations that use them. Poorly implemented, they can be disastrous.

Control issues will remain. Who controls the physical storage of an electronic document may be a cause for contention, or an opportunity for dialog. The idea of actually destroying an electronic document will be an alien concept to many in the information systems world.

## IN THE FUTURE

As if electronic documents were not enough to contend with, the creation, storage and use of electronic objects are now possible. An object may be text, image, graphic, video clip or sound bite. Like building blocks, electronic objects can be combined and recombined to form "virtual" documents, i.e., documents that exist only when they are retrieved. (The document is actually a collection of pointers to its component objects which may be physically stored on any server at any location). Managing a virtual document would seem an impossibility, but savvy developers are already figuring out ways to place retention periods on the links.

In the space of a single generation, records management has gone from managing containers, to individual documents, to specific document components. It is an exciting time to be in the information management field.

## FOOTNOTES

(n1.) News release, 2/28/95, Xplor International, The Electronic Document Systems Association.

(n2.) The products are called middleware because they represent a layer of software between the operating system (i.e., Windows) and the application software (i.e., Word or WordPerfect).

(n3.) An application program interface (API) is a set of language and formatting that allows one program to communicate with another.

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